

# MAJOR REGULATIONS STANDARDIZED REGULATORY IMPACT ASSESSMENT SUMMARY

DF-131 (NEW 11/13)

## STANDARDIZED REGULATORY IMPACT ASSESSMENT SUMMARY

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- Statement of the need for the proposed major regulation.  

The proposed Underground Injection Control (UIC) Regulations represent a significant overhaul to the Division of Oil, Gas, and Geothermal Resources' (Division) rules governing injection of fluids for purposes of enhanced oil recovery (EOR) and produced water disposal. Today's injection wells represent a unique and modernized set of techniques and standards that require specific regulations to avoid health and safety risks. The existing UIC regulations cover Class II injection wells broadly and have not been updated to reflect current field practices. The proposed regulations include specific rigorous standards that have two primary purposes: (1) to ensure injected fluids remain in the intended zone and (2) to ensure that injection wells used in both fluid disposal and EOR have verified mechanical integrity. The proposed regulations take a risk-based approach to clarify and expand UIC project data requirements to improve analyses of projects, ensure that subsurface characteristics of projects are more fully understood, and account for all potential risks. They also add rigor to mechanical integrity testing to reduce risks associated with well failures and fluid migration beyond the intended zone of injection. In addition, the proposed regulations establish incident response requirements and provide requirements for preventing and responding to surface expressions. The proposed regulations include specific requirements to meet these goals, however, they also provide substantial flexibility for operators to provide alternative methods for meeting these standards.
- The categories of individuals and business enterprises who will be impacted by the proposed major regulation and the amount of the economic impact on each such category.  

The proposed regulations directly affect California's oil and gas operators with Class II injection wells, as they are expected to carry an average cost of compliance of about \$185.3 million per year over the first five years of this analysis. The beneficiaries of the compliance spending are primarily oil and gas service contractors, as they will see an increase in demand for testing and other tasks such as re-abandonment of wells. Other industries that will benefit from the regulatory spending by the initial change in demand are: architectural, engineering, and related services; data processing, hosting, and related services; and mining and oil and gas field machinery manufacturing.
- Description of all costs and all benefits due to the proposed regulatory change (calculated on an annual basis from estimated date of filing with the Secretary of State through 12 months after the estimated date the proposed major regulation will be fully implemented as estimated by the agency).  

Costs: In the first year of compliance, the proposed regulations could cost the UIC operators over \$219 million statewide. In year two of compliance, the cost of the proposed regulation could rise to over \$232 million because the estimated costs are applied to both existing wells and projects and new wells and projects. After the initial two years, the Division expects the cost of compliance to level out and cost the industry approximately \$157 million per year statewide in Year 3 through 5.

Benefits: One of the intended benefits resulting from the proposed regulations is the protection of groundwater. The prevention of groundwater contamination is much less resource-intensive than remediation efforts once groundwater has been contaminated. A U.S. EPA study of costs associated with groundwater contamination remediation at Superfund and RCRA sites estimates that the costs could rise to over \$5 million per site. The proposed regulations will also address workplace safety and attempt to prevent workplace harm going forward. In 2011, a workplace incident involving an unexpected sinkhole caused by cyclic steaming operations resulted in the death of an employee, loss of production for operators in the area, and substantial litigation. Furthermore, the proposed regulations should reduce the risk of significant incidents to the operator that would lead to a stop in production, like surface expressions or groundwater contamination, which is key to maintaining profit margins in the short- and long-term.
- Description of the 12-month period in which the agency estimates the economic impact of the proposed major regulation will exceed \$50 million.  

The proposed regulations' economic impacts are estimated to exceed the \$50 million threshold in each of the five years of analysis after implementation. Direct costs are expected to average \$185.3 million per year over the five years, with operators meeting requirements for both existing and projected new projects and wells per year. The first two years of the analysis are expected to create the highest direct costs to the industry as operators work to bring their projects and wells into compliance. Over the five years of analysis, the effect of the initial spending is expected to generate an annual average of \$268 million per year in gross output, 1,099 per year in new jobs, \$74,000 per year in increased earnings, and over \$159 million per year in value added. The indirect economic impacts of regulatory spending, however, will be muted by potential short-term effects on the operators themselves, including reduced profit margins, diverted spending priorities and investment decisions, and the possible loss of jobs. Small operators may even exit the industry. As a result, there may be lower total production. However, most operators have evolved their business practices to withstand the extreme volatility of crude oil and natural gas prices. Since compliance costs imposed by the regulations are a small fraction of typical fluctuations in oil and gas in any given year, the Division expects that most operators will be able to absorb the costs of the proposed regulations. And in the long-term, the Division expects the typical operator to continue to innovate and adopt best practices to remain profitable.

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## 5. Description of the agency's baseline:

The proposed regulations were developed as part of a series of activities designed to modernize the Division's administration of California's UIC program. The baseline used in this analysis is the existing regulatory requirements for UIC projects that will be expanded, clarified, or replaced by the proposed regulations. The baseline for this analysis assumes that injection project operators, without the enactment of the proposed regulations, would – at minimum – be in compliance with the following: existing regulatory requirements, conditions imposed by the Division issued as part of the project-by-project review, recently approved project approval letters (PALs), and approved aquifer exemptions, and perform such activities as may be required to ensure that injection fluids are confined to the intended zone of injection. Consistent with its statutory authority, the Division is already imposing project-specific approval conditions for some UIC projects requirements that are substantively similar to some of the proposed regulatory requirements. This functional overlap likely reduces the actual cost impact of the proposed regulations on operators with existing PALs. However, since the review and imposition of higher standards is being conducted on a project-by-project basis as needed until the proposed regulations are finalized, this economic analysis takes a conservative approach and assumes that operators have complied with existing orders and currently enacted regulations only.

## 6. For each alternative that the agency considered (including those provided by the public or another governmental agency), please describe:

- All costs and all benefits of the alternative
- The reason for rejecting alternative

Alternative A is a more burdensome requirement that would require annual testing for all injection well types. Under proposed section 1724.10.2 Mechanical Integrity Testing Part Two, testing for fluid migration is required within three months after injection has commenced for the first time, with subsequent testing at differing frequencies depending on well type and configuration. These schedules were determined based on the level of risk associated with each type of well. Alternative A would require this Part Two testing on an annual basis for all wells, regardless of well type or configuration. The benefit of Alternative A is that it would allow for earlier investigation, detection, and mitigation of potential well integrity issues, reducing the potential for contamination of USDWs and the surrounding environment. Also, a single regulatory requirement for all wells would reduce regulatory confusion and provide consistency. However, the total cost to operators would increase dramatically from approximately \$85 million per year to over \$200 million per year. Ultimately, Alternative A is rejected for two main reasons: (1) additional risks from integrity testing could accelerate integrity loss in the well creating greater potential for loss-of-containment incidents; and (2) not all wells pose the same risk to health and natural resources in the event of failure, making the "one size fits all" approach in Alternative A an unjustified burden to operators.

Alternative B is a less burdensome requirement that would allow operators to implement a gauge on a manifold to monitor injection pressure of multiple wells without any specific requirement to obtain or use data from the gauge. The proposed regulations, in contrast, require the installation of well-specific pressure gauges continuously recording at all times during injection. The primary benefit of Alternative B is that pressure monitoring would be available at a lower cost often using equipment that is already in place. Under the proposed regulations, the cost for pressure monitoring and recording devices on every individual well would cost the industry over \$7 million in the first two years of the regulation's effective date, and nearly \$270,000 per year in Years 3 through 5. Under Alternative B, there would be little to no costs for existing operators because the use of gauges designed to monitor flow and pressure at the manifold are common throughout the industry. Ultimately, Alternative B is rejected because it does not allow for monitoring of individual wells. Although a pressure change on the manifold can be an indicator of a problem, it does not provide enough information to identify which well has the problem or even to determine if the problem lies with the wells or with the larger manifold system. More importantly, because the volume of flow within a manifold system is greater than an individual flow line, the ability of a gauge to detect small changes in pressure is reduced; this problem can be exacerbated by larger volumes of fluid being injected into larger numbers of wells across a single manifold.

## 7. A description of the methods by which the agency sought public input. (Please include documentation of that public outreach).

The Division conducted extensive public outreach in the pre-rulemaking phase to solicit input on the substance and economic impacts of the requirements. The Division conducted preliminary scoping workshops, circulated two pre-rulemaking drafts of the proposed regulations, conducted public workshops and stakeholder meetings to solicit input on the drafts, and surveyed operators for input on direct costs.

Initially, the Division conducted three public workshops to solicit input on the scope and direction of this rulemaking effort. On August 17, 2015, the Division released a Notice of Workshops on the Development of Updates to the Division's UIC regulations. The notice invited participation in the workshops as well as written input. Enclosed with the Notice was a Discussion Paper that identified the Division's regulatory goals for the UIC rulemaking effort and encouraged interested parties to identify themselves for participating in the rulemaking effort. The workshops were held on September 9, 2015 in Los Angeles, September 10, 2015 in Ventura, and September 15, 2015 in Bakersfield. Written comments were received until September 15, 2015.

Much of the Division's public outreach centered on soliciting input on two pre-rulemaking drafts of the regulations. On January 21, 2016, the Division made a pre-rulemaking draft of these regulations available for public comment, soliciting public input through March 4, 2016. On April 26, 2017, the Division made a second pre-rulemaking draft of these regulations available for public comment, soliciting public input through June 26, 2017. During that time, the Division conducted a public workshop in Bakersfield to discuss the second pre-rulemaking draft. The Division also surveyed operators and industry groups for input on the direct cost estimations used in the SRIA.

## 8. A description of the economic impact method and approach (including the underlying assumptions the agency used and the rationale and basis for those assumptions).

To estimate the direct costs of compliance with the proposed regulations, the Division divided the proposed regulatory requirements into discrete actions that operators will need to undertake if the regulations are implemented as proposed. Most of the individual requirements were translated into an online survey and distributed to operators via the oil and gas trade associations. Many of the requirements provide flexible, case-by-case compliance options allowing operators to propose alternative means of compliance. This analysis, unless indicated otherwise, conservatively assumes that operators will be required to comply with the costliest alternative even though operators would likely propose more cost-effective means to meet the requirement in many cases. In other instances, where the Division changed the regulations such that a requirement was materially altered, the Department relied on a combination of operator input and Division engineering staff expertise to estimate the cost.

After the direct costs were determined, the indirect economic impacts were derived using the Regional Input-Output Modeling System II (RIMS II) provided by the US Bureau of Economic Analysis. RIMS II is produced by the U.S. Bureau of Economic Analysis (BEA) using their 2007 national I-O table, which shows the input and output structure of nearly 500 U.S. industries, and adjusted by their 2015 regional economic accounts to reflect California-specific industrial structure and trading patterns. Each industry is associated with a set of multipliers that represents final demand change in state output, earnings, employment, and value-added, for every dollar of direct spending. In this analysis, direct spending is necessary to satisfy regulatory requirements, so spending is treated as an investment purchase rather than an intermediate input. The resultant economic impacts from the RIMS II analysis have several important assumptions that could limit or reduce the state economic impact. First, it assumes businesses in the affected industries have no supply constraints and can satisfy additional demand with an increase in inputs and labor from within the state. Second, it assumes businesses have fixed patterns of purchases, or increase in output requires the same proportionate increase in input. Third, the model assumes businesses use local inputs if they are available.

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Date

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